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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/590,496

06/09/2000

Stephen M. Lipka

NAO-0001

2489

7590

03/27/2006

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Bloomfield, CT 06002

EXAMINER

HA, NGUYEN T

ART UNIT

PAPER NUMBER

2831

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

18

<b>Office Action Summary</b>	<b>Application No.</b> 09/590,496	<b>Applicant(s)</b> LIPKA ET AL.	
	<b>Examiner</b> Nguyen T Ha	<b>Art Unit</b> 2831	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 January 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 and 20-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 20-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

- |  |  |
|--|--|
| 15) <input type="checkbox"/> Notice of References Cited (PTO-892)                              | 18) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____. |
| 16) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)          | 19) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 17) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. | 20) <input type="checkbox"/> Other: _____.                                   |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 1/5/2006 have been fully considered but they are not persuasive.

a) In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Inagawa et al. teach a double layer capacitor (supercapacitor) comprising every claimed limitations except for a positive electrode comprising manganese dioxide, However, Hayasaka et al. teach a non-aqueous electrolyte electrochemical cell (double layer capacitor, supercapacitor) having a positive electrode comprising manganese dioxide. According to the two references above, they are obvious for making the combination.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-11, 14-18 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inagawa et al. (US 6,097,587) in view of Hayasaka et al (US 5,478,670).

Regarding claim 1, Inagawa et al. disclose an electric double layer capacitor (figure 1) comprising:

- a positive electrode (11a) comprising a current collector (12);
- a negative electrode (11b) comprising carbonaceous active material (column 6, lines 63-64);
- an aqueous electrolyte solution (13); and
- a separator plate (14a and 14b).

**Inagawa et al. lack** the positive electrode comprising an active material selected from the group consisting of manganese dioxide, silver oxide, iron sulfide and mixtures thereof.

**Hayasaka et al. teach** a positive electrode comprising manganese dioxide (column 6, lines 65-66).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the positive electrode assembly of Sasaki substituted into Hayasaka et al., in order to increase the capacitance for the capacitor.

**The examiner hereby takes office notice that it is well known in the art that the electrochemical cell as taught by Hayasaka et al. is a double layer capacitor. Therefore, the teaching of Inagawa in view of Hayasaka is obvious for making the combination.**

Regarding claim 2, Inagawa et al. further disclose the negative electrode (11b) comprises a current collector (12, figure 1).

Regarding claim 3, Inagawa et al. disclose the current collector is selected from the group consisting of metal foil electrically conductive polymer composites (column 7, lines 4-6).

Regarding claim 4, Inagawa et al. further disclose the carbonaceous active material comprises nanofibrous materials/activated carbon fiber (column 6, lines 63-64).

Regarding claims 5-7, the teaching of Inagawa in view of Hayasaka et al. includes all the claimed limitations with respect to claims 1 & 4 above, except for the carbonaceous active material is discrete carbon fibers less than 10 microns in diameter, 100 nm in diameter or 50 nm in diameter. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the carbonaceous active material is discrete carbon fibers less than 10 microns in diameter, 100 nm in

diameter or 50 nm in diameter, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. ***In re Aller, 105 USPQ 233.***

Regarding claim 8, the teaching of Inagawa in view of Hayasaka et al. includes all the claimed limitations with respect to claim 1 above, except the negative electrode having a thickness about 50 microns to about 375 microns. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the negative electrode having a thickness about 50 microns to about 375 microns, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. ***In re Aller, 105 USPQ 233.***

Regarding claim 9, the teaching of Inagawa in view of Hayasaka et al. includes all the claimed limitations with respect to claim 1 above, except for the carbonaceous active material is non-woven mat, woven cloth or two dimensional sheet comprising carbonized polymer. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the carbonaceous active material is non-woven mat, woven cloth or two dimensional sheet comprising carbonized polymer, since the applicant does not solve a particular problem with this shape and more than mere change or form or shape is necessary for patentability. ***Span-Deck Inc. v. Fab-Con, Inc. (CA 8, 1982) 215 USPQ 835.***

Regarding claim 10, Inagawa et al. disclose the negative electrode further comprises a collection coating (figure 1).

Regarding claim 11, the teaching of Hayasaka further disclose the positive electrode active material comprises manganese dioxide (column 6, lines 65-66).

Regarding claim 14, Inagawa et al. further disclose the active material is applied to the current collector by thermal spray/coat (column 7, lines 1-6).

Regarding claim 15, Inagawa et al. disclose the positive electrode further comprises a binder (column 6, lines 63-65).

Regarding claim 16, Inagawa et al. disclose the current collector is selected from the group consisting of metal foil electrically conductive polymer composites (column 7, lines 4-6).

Regarding claims 17 & 18, the teaching of Inagawa in view of Hayasaka et al. includes all the claimed limitations with respect to claim 1 above, except for the positive electrode thickness is less than about 250 microns or 50 microns. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the positive electrode thickness is less than about 250 microns or 50 microns, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. ***In re Aller, 105 USPQ 233.***

Regarding claim 20, Inagawa et al. disclose the electrolyte is selected from the group consisting of sulfuric acid (column 7, lines 10-11).

Regarding claim 21, Inagawa et al. disclose an electric double layer capacitor (figure 1) comprising:

- a positive electrode (11a) comprising a current collector (12);

- a negative electrode (11b) comprising carbonaceous active material (column 6, lines 63-64);
- an aqueous electrolyte solution (13); and
- a separator plate (14a and 14b).

**Inagawa et al. lack** the positive electrode comprising manganese dioxide.

**Hayasaka et al. teach** a positive electrode comprising manganese dioxide (column 6, lines 24-29).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the positive electrode assembly of Hayasaka et al. substituted into Inagawa et al., in order to increase the capacitance for the capacitor.

Regarding claim 22, the teaching of Inagawa et al. in view of Hayasaka includes all the claimed limitations with respect to claim 21 above, except for the carbonaceous active material is nanofibrous. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the nanofibrous for the carbonaceous material, sine it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

4. Claims 12-13 and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inagawa et al. (US 6,097,587) in view of Hayasaka et al (US 5,478,670) as applied to claims 1 & 21 above, and further in view of Xiao et al (US 6,162,530).



Regarding claims 12-13 and 23-24, the teaching of Inagawa in view of Hayasaka et al. includes all the claimed limitations with respect to claims 1 & 21 above, except for the manganese dioxide being nanostructured.

Xiao et al. teach a manganese dioxide being nanostructured (column 5, lines 48-50).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Xiao manganese dioxide into the capacitor of Inagawa et al. in view of Hayasaka et al., in order to facilitate intercalation of the conductive for the device.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

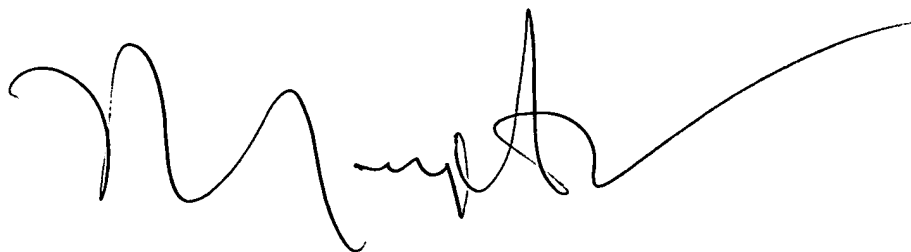
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen T. Ha whose telephone number is 571-272-

1974. The examiner can normally be reached on Monday-Friday from 8:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-2800 ext. 31. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Nguyen T. Ha', with a long, sweeping horizontal stroke extending to the right.

**Nguyen T. Ha**

**March 15, 2006**